

This listing of claims replaces all prior versions and listings of claims in this application.

**LISTING OF CLAIMS:**

1. (Currently Amended) A method for the preparation of a polymer electrolyte electrochemical cell using an electrolyte precursor, said precursor comprising one or more solvents, one or more salts and a polymer which dissolves in the solvent at a first temperature ~~( $T_{dissol}$ )~~,  $T_{dissol}$ , and which is capable of forming a gel on subsequent cooling following heating to a second temperature ~~( $T_{gel}$ )~~,  $T_{gel}$ , wherein  $T_{dissol}$  ~~being~~ is lower than  $T_{gel}$ , which method comprises:

heating the electrolyte precursor to  $T_{dissol}$ ;

- (a) optionally cooling the electrolyte precursor;
- (b) incorporating the electrolyte precursor into the electrochemical cell;
- (c) heating the electrochemical cell to  $T_{gel}$ ; and
- (d) cooling the polymer electrochemical cell to ambient temperature to bring about gelling of the polymer electrolyte.

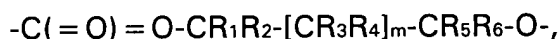
2. (Currently Amended) The A method according to claim 1, in which said polymer is a homopolymer or copolymer selected from the group of monomers consisting of vinyl fluoride, vinylidene fluoride, trifluoroethylene, tetrafluoroethylene and hexafluoropropylene.

3. (Currently Amended) The A method according to claim 1, in which said polymer is a copolymer of vinylidene fluoride and hexafluoropropylene.

4. (Currently Amended) The A method according to claim 3, in which said copolymer of vinylidenefluoride and hexafluoropropylene has a molecular weight in the range ~~50,000-500,000~~, 50,000-500,000 ~~more preferably 100,000-300,000~~, and a weight ratio of vinylidenefluoride and hexafluoropropylene in the range 80:20 to 90:10.

5. (Currently Amended) The A method according to claim 1, in which the electrolyte comprises one or more solvent(s) selected from the ~~groups~~ group consisting of (a) to (e):

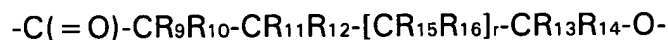
(a) alicyclic carbonates represented by the following general formula:



wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> independently represents hydrogen or a C<sub>1</sub>-C<sub>4</sub> alkyl group and m is 0 or 1, ~~preferably ethylene carbonate or propylene carbonate;~~


(b) aliphatic carbonates represented by the general formula R<sub>7</sub>[OC(O)]<sub>p</sub>OR<sub>8</sub>, wherein each of R<sub>7</sub> and R<sub>8</sub> independently represents a C<sub>1</sub>-C<sub>4</sub> alkyl group, and p is an integer equal to 1 or 2, ~~preferably dimethyl carbonate or diethyl carbonate;~~

(c) lactones in the form of cyclic esters represented by the general formula:



wherein each of R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub> independently represents hydrogen or a C<sub>1-2</sub> alkyl group and r is 0 or 1, ~~preferably  $\gamma$ -valerolactone and/or  $\gamma$ -butyrolactone;~~

(d) esters represented by the formula R<sub>17</sub>[C(O)]OR<sub>18</sub>]<sub>t</sub>, wherein each of R<sub>17</sub>, R<sub>18</sub> and R<sub>19</sub> independently represents hydrogen or a C<sub>1-C2</sub> alkyl group, and t is 0 or an integer equal to 1 or 2, ~~preferably an acetate, more preferably (2-methoxy-ethyl)-acetate or ethyl acetate; and~~

 (e) glymes represented by the general formula R<sub>20</sub>O(R<sub>21</sub>O)<sub>n</sub>R<sub>22</sub>, in which each of R<sub>20</sub> and R<sub>22</sub> independently represents a C<sub>1-2</sub> alkyl group, R<sub>21</sub> is - (CR<sub>23</sub>R<sub>24</sub>CR<sub>25</sub>R<sub>26</sub>)- wherein each of R<sub>23</sub>, R<sub>24</sub>, R<sub>25</sub> and R<sub>26</sub> independently represents hydrogen or a C<sub>1-C4</sub> alkyl groups, and n is an integer from 2 to 6, ~~preferably 3, R<sub>20</sub> and R<sub>22</sub> preferably being methyl groups, R<sub>23</sub>, R<sub>24</sub>, R<sub>25</sub> and R<sub>26</sub> preferably being hydrogen or C<sub>1-C2</sub> alkyl groups, more preferably hydrogen.~~

6. (Currently Amended) The A method according to claim 1, in which the electrolyte comprises one or more salts selected from the group consisting of alkali metal or ammonium salts of ClO<sub>4</sub>, CF<sub>3</sub>SO<sub>3</sub>, AsF<sub>6</sub>, PF<sub>6</sub> ~~or~~ and BF<sub>4</sub>, ~~preferably LiPF<sub>6</sub> and LiBF<sub>4</sub>.~~

7. (Currently Amended) The A method according to claim 1, in which the electrolyte comprises solvent(s), salt(s) and ~~polymer(s)~~ polymer in the compositional range from 63:25:12 to 94:5:1 percent of the total weight of the electrolyte system, ~~preferably in the compositional range from 70:20:10 to 90:8:2 percent of the total weight of the electrolyte system, more preferably in the compositional range from 75:17:8 to 88:8:4 percent of the total weight of the electrolyte system.~~

8. (Currently Amended) The A method according to claim 1 in which the electrolyte is confined in a separator consisting of a porous structure made of a polymer, ~~preferably of polyethylene, polypropylene, polycarbonate or cellulose.~~

9. (Currently Amended) The A method according to claim 8, in which the separator has a woven or non-woven structure having a pore size in the range of 10 x 10 nm to 1 x 1 mm.

10. (Currently Amended) The A method according to claim 8, in which the separator has a thickness of 10-100 $\mu$ m, ~~preferably 10-25 $\mu$ m.~~

11. (Currently Amended) The A method according to claim 1, in which the electrochemical cell has a negative electrode structure comprising one or more compounds selected from the group consisting of graphite, coke, mesocarbon microbeads, carbon black, aluminum, silicon ~~or~~ and tin, ~~preferably graphite, mesocarbon microbeads, coke or carbon black, more preferably graphite or mesocarbon microbeads,~~ and a positive electrode structure comprising one or more compounds selected from the group consisting of lithium manganese oxides, lithium cobalt oxides and lithium nickel oxides, ~~preferably lithium manganese oxides, more preferably lithium manganese oxide  $\text{LiMn}_2\text{O}_4$  of spinel structure.~~

12. (Currently Amended) The A method according to claim 1, in which the dissolution temperature  $T_{\text{dissol}}$  is in the range 45-80°C, ~~preferably 60-80°C, more preferably 65-75°C,~~ and the gelling temperature  $T_{\text{gel}}$  is in the range 75-100°C, ~~preferably 80-90°C,~~ with the proviso, that  $T_{\text{gel}}$  should be higher than  $T_{\text{dissol}}$ .

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16. (Currently Amended) The A method according to claim 1 wherein the gap between electrode laminates of the electrochemical cell is smaller than at least the largest polymer particles so that the electrolyte in the vicinity of the edge of the laminate and outside the laminate contains a larger amount of polymer than the electrolyte between the electrodes.

17. (Currently Amended) An electrochemical cell having a negative electrode structure comprising one or more compounds selected from the group consisting of graphite, coke and mesocarbon microbeads, and a positive electrode structure comprising one or more compounds selected from the group consisting of lithium manganese oxides, lithium cobalt oxides and lithium nickel oxides, ~~preferably lithium manganese oxide,~~ and a gelled polymer electrolyte, 1-12% by weight, ~~preferably 4-8% by weight,~~ of the total weight of the electrolyte being said polymer, ~~which is selected from the group of homopolymers and copolymers wherein said polymer is a homopolymer or copolymer selected~~ from the group of monomers consisting of vinyl fluoride, vinylidene fluoride, trifluoroethylene,



(a) heating an electrolyte precursor, comprising one or more

**$T_{\text{dissol}}$  is lower than  $T_{\text{gel}}$ ;**

(c) incorporating the electrolyte precursor into the electrochemical

(d) heating the cell to  $T_{gel}$ ; and

to bring about gelling of the polymer electrolyte.

18. (New) The method according to claim 4, wherein the copolymer

19. (New) The method according to claim 5, wherein the electrolyte

(a) alicyclic carbonates selected from the group consisting of

(b) aliphatic carbonates selected from the group consisting of

(c) lactones selected from the group consisting of  $\gamma$ -valerolactone



26. (New) The electrochemical cell according to claim 17, wherein the positive electrode structure comprises lithium magnesium oxide.

27. (New) The electrochemical cell according to claim 17, wherein the polymer is a copolymer of vinylidene fluoride and hexafluoropropylene.

28. (New) The electrochemical cell according to claim 17, wherein the polymer is 4-8% by weight of the total weight of the electrolyte.